

CLAIMS:

1. A device for detecting interactions between species attached to a support and species in a liquid, when said support and said liquid are brought into contact; comprising

a solid support (11) on which a first species can be attached in one or more non-overlapping defined areas thereon;

a detector (12) capable of detecting an interaction between said species attached to the solid support, and said species contained in said liquid;

characterized by

a mechanism (16) adapted for temporarily reducing, in a defined area of said support, the amount of liquid with which said support is brought into contact in the course of a detection; and in that

at least one of the defined areas do not have a species of interest attached, so as to form a reference area for the detection.

2. Device as claimed in claim 1, wherein said solid support is an essentially flat dish capable of holding a liquid confined within its boundaries.

3. The device as claimed in claim 1 or 2, wherein there is provided a motor for enabling rotation of the dish at an angle deviating from the horizontal, so as to provide for a temporary reduction of the amount of liquid in said defined area of said support.

4. The device as claimed in claim 1, 2, or 3, wherein there is provided an aspirating device for aspirating liquid from said support before measurement, and for returning liquid to the support after measurement.

5 5. The device as claimed in any of claims 1 – 4, wherein the detector (12) is a scintillation detector, and wherein there is further provided an electronic counter device (13) for counting the impulses from the detector (12), and a control unit for adjusting and reporting the angular position of the support (11), and a computer (15) for synchronizing scintillation counter
10 output from the counter (13) and the angular position of the cell dish support from the control unit (14).

6. A method of detecting interactions between species in a liquid and species on a solid support, comprising:

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attaching a first species on a defined portion of a solid support;

exposing said first species to a liquid containing a second species, so as to cover the defined portion of the solid support;

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performing a measurement, capable of detecting an interaction between said first and said second species;

characterized in that

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the amount of liquid covering the defined portion of the support is temporarily reduced prior to performing said measurement;

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a reference measurement is performed on a different portion of the solid support where no interaction takes place, said portion defining a reference area.

7. The method as claimed in claim 6, wherein the interactions on all defined areas are detected within 1 minute, and the detection of all interactions are repeated without interruption during at least 15 minutes in order to determine the progress of the interaction over time.

8. The method as claimed in claim 6, or 7, wherein said temporary reduction of liquid comprises a reduction of the amount of liquid near at least one of said defined areas without changing the total amount of liquid in contact with said solid support.

9. The method as claimed in any of claims 6-8, wherein a difference between target and reference measurements is calculated.

10. The method as claimed in any of claims 6-9, wherein the sequence of steps of exposing, reducing the amount of liquid, and measuring is repeated, and wherein the concentration of said second species is increased by a finite amount before said sequence of steps is repeated.

11. The method as claimed in any of claims 6-10, wherein the solid support is an essentially flat dish capable of holding a liquid confined within its boundaries.

12. The method as claimed in any of claims 6-11, wherein the reduction of the amount of liquid is achieved by orienting the support at an angle that deviates from the horizontal to provide an elevated part and a lower part of said support, such that the elevated part will be covered by less liquid than the lower part, and wherein the support is rotated at a predetermined speed of rotation.

13. The method as claimed in any of claims 6-12, wherein the first species is selected from tissues, cells, bacteria, virus particles.

14. The method as claimed in any of claims 6-13, wherein the second species present in the liquid is a dissolved molecule or a dissolved complex of molecules with a total molecular weight less than 1000000 g/mole.